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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,037	02/09/2005	Kai Schumacher	264681US0XPCT	4865

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EXAMINER	
LIAO, DIANA J	

ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
02/09/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/524,037	SCHUMACHER ET AL.	
	Examiner	Art Unit	
	DIANA J. LIAO	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-18* is/are pending in the application.

4a) Of the above claim(s) *6-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 4 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/30/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/16/09 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as obvious over Fitzgerald, et al. (US 5,623,028) in view of Mangold, et al. (US 6,328,944) and optionally Mangold, et al. (US 6,423,331).

Fitzgerald '028 teaches a fumed or pyrogenic silica filler for a rubber. (col 4, lines 38-40) The surface hydroxyl content of the silica is controlled in order to achieve desired properties. (col 1, lines 5-13) For example, if the silanol density is high, the sealing force percentage of the rubber that the filler is in is low. (Table 3) In the examples, silica of 4.5 OH/nm^2 is treated to obtain silica with surface silanol densities ranging from 2.60 to 3.85 (Table 2), with several examples, including 3.85 OH/nm^2, falling within the claimed range. A preferred composition contains a fumed silica filler with a surface area from 90-400 m^2/g with the silanol density controlled. (col 8, lines 19-26) This surface area range falls within the claimed range.

The teaching of fumed silica or pyrogenic silica in Fitzgerald '028 is found to fairly teach the limitation of a silica produced by flame hydrolysis, which is a product by process limitation.

Fitzgerald '028 does not specifically teach that the hydroxyl density is from 3 to 4.7 OH/nm^2 as measured by the lithium aluminum hydride method in Mathias, et al. However, there is no clear evidence on record showing that the hydroxyl density values of Fitzgerald '028 are not equivalent to measurements by any other method.

Fitzgerald '028 does not teach a doped silicon powder.

Mangold '944 teaches pyrogenically prepared metals of doped with at least one doping component at 0.00001 to 20 wt.%. The surface area of this doped oxide is 5-600 m^2/g. (col 1, lines 30-40) Silicon dioxide is one of the metal oxides encompassed in Mangold '944. (col 3, lines 5-8) The doping components are distributed almost homogenously in the pyrogenically prepared-oxide. (col 3, lines 15-17) This is found to fairly teach or suggest a mixed metal oxide. The materials created may be useful for applications such as additives in the silicone or rubber industry. (col 3, lines 30-36)

One of ordinary skill in the art would be motivated to combine doping with the silica of Fitzgerald '028 in order to create a silica with improved properties. For example, a silica doped with cerium is found to have an improvement in thickening effect in a polyester resin. (col 7, lines 63-65)

Optionally, Mangold '331 also teaches a silicon dioxide doped with silver or silver oxide. The silver is added for bactericidal properties and can be used as a filler in rubber or silicone rubber. (col 1, lines 11-16)

Therefore due to the advantageous effects of doping, claims 1, 4 and 5 are not found patentable over the prior art.

Response to Arguments

5. Applicant's arguments filed 10/16/2009 have been fully considered but they are not persuasive.

Applicant argues that the prior art fails to teach the limitations of claim 1, namely the hydroxyl group density as measured by Mathias, et al. In an earlier response, applicant argued that the method of measuring hydroxyl density greatly affected the numerical value of OH/nm^2 and that Fitzgerald '028 decreases the hydroxyl density rather than increases it as is described in the instant specification. However, as previously discussed, there is nothing definitive on record showing that a given method consistently and predictably gives a different (in this case higher) measurement. The silanol density of the raw silica in the examples of Fitzgerald '028 also starts at 4.5 OH/nm^2 and reduced, thus, at least the raw silica in Fitzgerald '028 has the required hydroxyl density within the claimed range regardless of if the treatment process of Fitzgerald '028 is applied.

Applicants also argue that the silica of Fitzgerald '028 contains organic compounds on its surface while the instant invention does not. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The examiner is also citing Mueller, et al. ("OH Surface Density of SiO_2..." 2003) to show a study on different methods of hydroxyl density measurements done on commercially made powders. One of the methods employed is $LiAlH_4$ titration which appears to be substantially similar to, if not the same as, the claimed lithium aluminum hydride method by Mathias, et al. Mueller, et al. shows that commercially made powders have hydroxyl densities within the claimed ranges as measured by titration without any modification. (Table 2, S111 and Aerosil 200)

Applicants have requested that Mangold '944 and Mangold '331 be cited in a PTO-892 form. The examiner notes that these references were cited on a PTO-892 sent on 10/16/2008.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mueller, et al. ("OH Surface Density..." 2003)

Kammler, et al. ("Synthesis of Silica-Carbon Particles..." 2001)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIANA J. LIAO whose telephone number is (571)270-3592. The examiner can normally be reached on Monday - Friday 9:00am to 6:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ngoc-Yen M. Nguyen/
Primary Examiner, Art Unit 1793

DJL